

DOCUMENT RESUME

ED 187 622

SO 012 602

AUTHOR Kepner, William B., Jr.
 TITLE Teaching Future Studies to Secondary School Students:
 A Curriculum.
 PUB DATE Aug 79
 NOTE 82p.
 EDRS PRICE MF01/PC04 Plus Postage.
 DESCRIPTORS Change; Decision Making; *Elective Courses; *Futures
 (of Society); Global Approach; Grade 12; Life Style;
 Long Range Planning; Resource Materials; Secondary
 Education; Social Change; *Social Studies; Teaching
 Guides; World Problems

ABSTRACT

This publication describes a semester-long course developed for teaching future studies to secondary school students. The course is designed as a senior high social studies elective. Objectives are to help students recognize that change will occur, that change in one area will affect other areas, that the future can be influenced, and that they can help create a more desirable future. To implement the course teachers must purchase or have access to print and non-print publisher available materials. Students are involved in many classroom discussions, view films and slide shows, read journal articles, play games, and participate in many group projects. Two ongoing activities which take place throughout the course involve students in one, keeping a journal in which they react daily to activities and ideas, and two, developing a cross impact matrix on weekly topics. The course consists of five units. The first unit is an introductory unit which increases student awareness of future studies and future thinking. In the second unit students examine population growth, pollution, energy problems, and other concerns of a global nature. Students are introduced to urban planning and the nature of formal forecasting efforts in the third unit. Unit four deals with highly personal choices and decisions the students may have to make in their own lives. In the fifth unit alternate life styles and the need for changing institutions and laws to meet changing times are explored. Also included in the publication is a bibliographic essay citing resource materials for teachers. (Author/RM)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

ED187622

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

William R. Kepner

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ABSTRACT

TEACHING FUTURE STUDIES
TO SECONDARY SCHOOL STUDENTS:
A CURRICULUM

by

William R. Kepner, Jr.

sp 012 602

UNIVERSITY OF HOUSTON AT CLEAR LAKE CITY

August 1979

ABSTRACT

The purpose of this project has been to create a semester-long curriculum suitable for teaching future studies to secondary school students. The author is on sabbatical leave from the Mt. Diablo Unified School District in Concord, California and will return in the Fall of 1979 to teach the curriculum.

At the core of the curriculum is the belief that education can meet its goal of "preparing students for the future" by formally and systematically exploring future possibilities and the methods of assessing those possibilities.

The objectives of this curriculum are to help the student recognize: (1) the inevitability of change; (2) that every change in one area will affect other areas; (3) that the future can be influenced; (4) that he can help create a more desirable future.

Creation of the curriculum has been the major thrust of this project. It has involved extensive research into material and into methods appropriate for the course content and objectives. The author's experiences and research in the Studies of the Future program are incorporated directly into the curriculum.

The curriculum itself is constructed of one, two, and three week units, each dealing with specific areas and methods. The units are integrated by use of individual journals and a continuously up-dated student-produced cross impact matrix. Following the curriculum, additional units are outlined for use, as particular needs require. In addition to the curriculum, an overview of source material is included.

The success of the curriculum will be measured when the author teaches it to two classes of senior students at Clayton Valley High School in Concord. The curriculum is varied, thought-provoking and interesting. It is the opinion of the author that the curriculum will meet its stated objectives.

TABLE OF CONTENTS

	Page
A. INTRODUCTION.....	1
1. Purpose of study.....	1
2. Philosophical basis of the curriculum.....	6
3. Overview of resources.....	8
B. THE CURRICULUM.....	13
1. Introduction to the curriculum.....	13
2. The basic curriculum.....	19
3. Possible alternatives.....	50
C. CONCLUSION.....	54
D. APPENDIX.....	57
E. CURRICULUM NOTES.....	68
F. SELECTED BIBLIOGRAPHY.....	76

PURPOSE OF STUDY

It seems apparent to most that we are living in an era of unprecedented change. All we must do is to observe and we will see rapid changes occurring in such areas as energy usage and availability, speed and diversity of communications, and life extending medical technologies, to name only a few. Ability to adapt to the high rate of change is of pressing importance.

One of the objectives of education must be to prepare students for the future. Such an objective has been a stated goal or purpose of educational curricula for years, yet as the rate of change has accelerated, most teachers have continued to teach time-tested realities. Even "current events" reflect the recent past. Alvin Toffler takes this attitude to task in his work,

Future Shock:

It is no longer sufficient for Johnny to understand the past. It is not even enough for him to understand the present, for the here-and-now environment will soon vanish. Johnny must learn to anticipate the directions and rate of change. He must, to put it technically, learn to make repeated, probabilistic, increasingly long-range assumptions about the future. And so must Johnny's teachers.

To create a super-industrial education, therefore, we shall first need to generate successive, alternative images of the future--assumptions about the kinds of jobs, professions, and vocations that may be needed twenty to fifty years in the future; assumptions about the kind of family forms and human relationships that will prevail; the kinds of ethical and moral problems that will arise; the kind of technology that will surround us and the organizational structures with which we must mesh.

Even more important than any specific bits of advance information, however, is the habit of anticipation. This conditioned ability to look ahead plays a key role in adaptation. Indeed, one of the hidden clues to successful coping may well lie in the individual's sense of the future. The people among us who keep up with change, who manage to adapt well, seem to have a richer, better developed sense of what lies ahead than those who cope poorly. Anticipating the future has become a habit with them. The chess player who anticipates the moves of his opponent, the executive who thinks in long range terms, the student who takes a quick glance at the table of contents before starting to read page one, all seem to fare better.

In short, Toffler calls for a reevaluation of present norms, values, and goals--a return to plurality and diversity that will encourage "anticipatory" mindsets.

There are numerous academic and governmental agencies involved in studying the rates of change and how changes will affect the society. Unless, however, that society is prepared not only to cope with the changes that occur, but also to direct the nature of that change, people and society as a whole may feel severe dislocations. Toffler's "future shock" may occur on even a wider and more severe scale than earlier anticipated. H. Wentworth Eldridge addresses the problem:

"Futuristics" appears to suffer from an identity crisis. Pop futurism, though successful in attracting the fickle attention of mass publics, does not really understand the intellectuals' doings, while the latter seem unable to communicate with the masses or identify with their enthusiasms. The threat of an "elitist futurism" yields a latent unease. But unless the citizens of democratic states grasp the terrible significance of careful future-oriented thought and action, the pilot intellectuals will not be supported by adequate good will, funds and an institutional framework necessary to create the reliable knowledge so lacking in a scientific futurism...

Instant cures are not in sight for the exponentially increasing difficulties ahead. The intellectual camp needs the public's faith in order to have faith in the public.

There is a need, too, for "bridging" persons to interpret the intellectual camp to the public, and for intuitive, artistic, creative minds to leaven and fertilize intellectual production. The fantasy of science fiction, the inputs of the counterculture, the "necessity of heresy," is required to stir the stodgy societal pot of warmed over ideas. Education in futures studies clearly stands between the two camps. Any intellectual excellence comes from valid research, but empathy with varied publics lies at the base of teaching and learning skills.

There are a wide range of objectives and skills relevant to education for the future. Draper Kaufmann cites these objectives of futures education:

1. Help students understand the concept that there are not one but many possible alternative futures, some desirable and some not, and that the selection among these alternatives will be determined by a combination of chance and human choice.

2. Teach students basic forecasting skills so that they can continue to look ahead on their own.
3. Prepare students to understand the major issues which will dominate the foreseeable future.
4. Teach students concepts and skills, based on general systems theory, for understanding stability and change and for coping with complexity.
5. Help students acquire a longer time perspective and the habit of thinking in terms of the consequences of possible actions and events.

In addition to the skills specifically relevant to futures education, Kaufmann goes on to cite requirements for any school that really wants to educate students effectively for the adult life that awaits them:

1. Begin with the student's image of his or her own future and work to strengthen and enrich that image when necessary.
2. Organize the learning environment to stimulate creativity, self-motivated learning, and self-discovery.
3. Apportion space in the curriculum to different subjects according to their relevance to the students' futures; explain the rationale behind the curriculum to the students; and be flexible enough to accommodate differences in interests, abilities, and future plans.
4. Encourage a global, environmental, and interdisciplinary perspective, emphasizing the interrelated nature and underlying similarities of all biological and social systems.
5. Help students acquire confidence in themselves, in their ability to cope with ambiguity and change, and in their capacity to influence the future for the better.
6. Emphasize thinking processes and lifelong skills over factual content and transient information.

All of these objectives assume a dynamic interpretation of education rather than a static one. They also point toward educational programs that are interactive, in which both knowledge and knowledge-handling skills evolve together. They point toward programs that include substantive, process, normative, and conceptual concerns.

The development of future programs to meet such objectives is in many

respects a "grass roots" movement: an idea whose realization has sprung from within the teaching profession, rather than being thrust upon it by legislative mandate. Of the futures teachers to whom this author has spoken, virtually all were initiators of their own programs. James Stirewalt reports in the World Future Society Bulletin:

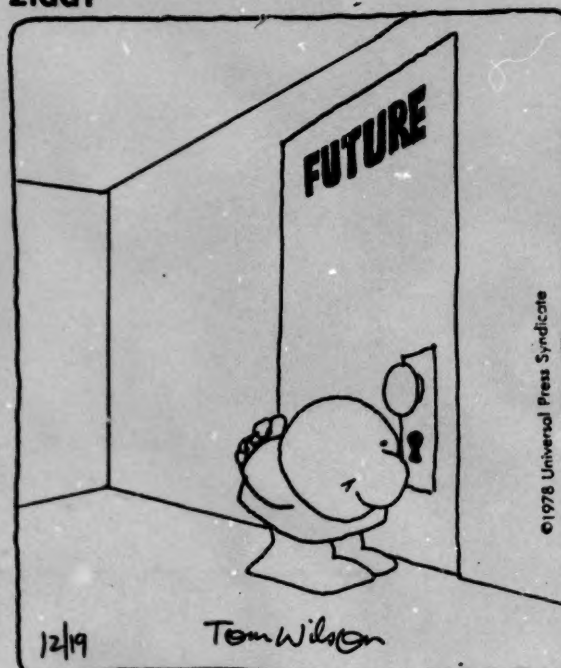
While increasing numbers of high school students have taken futures courses or have otherwise been exposed to ideas about the future, this growth is not due to a massive effort by the nation's educational administrators. Its origin and impetus derives rather from the interest of a tiny minority of teachers, administrators, and researchers communicating among themselves through both formal and informal networks. The unbalanced development and uneven quality of efforts thus far stems from the need for individual teachers simultaneously to acquire personal expertise, develop curriculum materials and teach classes, frequently with little or no institutional support.

Finally, there is a need expressed by the most important group: the students. While a need for future studies programs has been expressed by futurists and think tanks, by some educational administrators and by some teachers, the need expressed by students may be stronger than any other group. When Clayton Valley High School in Concord, California, offered two sections of "The Future" as a Social Studies elective for Juniors and Seniors in the Fall of 1977, the Seniors, who had class selection priority, filled the classes before the Juniors even had a chance to enroll. The two sections were the first two classes closed (at 36 students each) in the registration. This was repeated in Spring semester registration. In a recent article in the World Future Society Bulletin, Dwight W. Allen and Jack Plante report on the findings of a Patterson, New Jersey, survey of secondary school students to determine which subject matter areas the students thought to be important content areas. Out of 20 academic subjects tested, "the future" was judged to be the most important subject for students to study. With a "most important" rating of 75 per cent by intermediate students and 77 per cent by high school students, "the future" scored more

highly than any other subject. Included among those ranked lower than "the future" were math, science, art, health and even sex education.

Neither of these situations is surprising. They indicate that perhaps the "patient" knows what is best for him (particularly when some of the "doctors" agree). An education must help students envision a future that goes beyond mere extrapolation. To that purpose this curriculum was formulated.

ZIGGY



PHILOSOPHICAL BASIS OF THE CURRICULUM

I do not perceive my role as a teacher to be a dispenser of facts and truths. The student already has at his disposal a myriad of sources and facts. Although information is important, it is more important for me to provide problem-solving experiences. He must find his own truth by testing alternatives and possible consequences.

In my role as teacher, I see myself as a facilitator. It is for me to help the student develop means of putting facts, opinions and feelings together. I can show the student ways of looking at information, ways of interpreting events, and ways of assessing what it all means. What I really "teach" is problem-solving behavior.

Almost all of our education about social change and development deals with the past (assuming that exposure to past solutions will somehow transfer to ability to solve future problems). Of course a firm background is important, as is an awareness of what has worked before, but to stop here is to do half a job. The art of anticipating change and finding methods for developing potential coping strategies must be conveyed.

The student, following this curriculum, will hopefully understand the inevitability of change. As facilitator I will share with the student the information in perspective so that he can examine the alternatives and possibilities. Further, I will give the student some practice in decision-making at the interface of himself and the future.

The teaching methods that might succeed are many. A mixture of teaching methods such as the use of media, lecturing, relating to articles, simulating situations, gaming, and discussing ideas, would work better than any single method. I find that by serving as a guide or an initiator of questions, I succeed better than if I assume the role of "purveyor of truth

and wisdom." In fact, I suspect that some days I learn more than the students do. Because the future is a verb rather than a noun, learning with the students is a necessary condition of true inquiry.

My classroom atmosphere is one of mutual respect. I recognize the student as an equal human being, inviting him to share with the rest of the class any insights he perceives to be important. When students learn that you really will listen to their ideas, a sense of mutual inquiry can be achieved. The seating arrangement is as flexible as possible, enabling a high degree of face-to-face interaction, avoiding the necessity of the teacher always being the center of discussion. I usually have a few points about each topic that I believe need to be explored, and we usually get to them, but it is important also to discuss what the students feel to be important.

Ideally, the student will emerge from any of my classes more knowledgeable about his life choices. I hope the students emerge with a greater awareness of change and how it affects them. In fact, they should come out with more questions to be answered than they had when they began. However, they should also have a better sense of coping and dealing with the answers that emerge, so that they can better direct their own lives. I hope they will have a better sense, both individually and cooperatively of creating the future.

In summary, this curriculum is based on a student-centered approach. Truth is a relative term and should be reevaluated in light of alternatives and consequences. Indeed, change is the essence of reality. Values may also change as the possibilities and alternatives change.

If teachers are to live up to our claim of preparing children for life, we must teach that plurality and diversity are needed components of the future. It is hoped that this curriculum will provide that understanding.

REVIEW OF SOURCE MATERIAL

Once the teacher has decided to design a futures unit, a complete course, or even to infuse futures thinking into regular classroom activities, the teacher must search for sources for background material, for teaching methods and ideas and for direct use with the students. During the preparation of this curriculum unit, many sources were researched. The most useful sources are presented here.

Background reading provides a sound information and philosophic base for the teacher. Of the many books published, a few stand out as particularly useful preparation. The World Future Society Book, The Study of the Future, by Edward Cornish, provides an overview of what futurists are all about, including the history of futurism, and biographies of noted futurists. An educational perspective of futures can be gained by reading Alvin Toffler's Learning for Tomorrow: The Role of the Future in Education, a series of essays about the future role of education. In addition, there are several representative curricula.

After reading these two books, the teacher should have his own list of further books to be read. Among them should be Donella and Dennis Meadow's Limits To Growth, Herman Kahn, William Brown and Leon Martel's The Next 200 Years: A Scenario for America and the World, and Willis Harman's An Incomplete Guide to the Future. These three books represent diverse views about the future. The Meadows present a pessimistic picture of the future if we continue the same rate of growth. Kahn, on the other hand, presents an optimistic view of continued growth and development. Harman contends that mankind is moving through a transformation to a "transindustrial", more mature society. His view places great faith in the human element.

Several books have more visual impact. Two by Don Fabun, Dynamics of

Change and Dimensions of Change, are full of ideas, quotations, and illustrations. Marshall McLuhan and Quentin Fiore's The Medium is the Massage and Buckminster Fuller, Jerome Agel and Quentin Fiore's I Seem To Be a Verb use graphic techniques to get ideas across. Books by John McHale, World Facts and Trends, The Future of the Future, and The Changing Information Environment make particularly good use of graphs and charts to illustrate important points.

Guides to teaching the future are few, compared with more traditional areas. The most useful book is Draper Kaufmann's Teaching the Future: A guide to Oriented Education, a book full of ideas and procedures for introducing the idea of the future and for teaching methods of looking at the future. Ronald and Ellen LaConte's Teaching Tomorrow Today: A Guide To Futuristics is also useful for developing lessons and units. Both books are full of specific activities that can be immediately put to use. If the teacher would like to use a fiction approach to futures thinking, Bernard Hollister and Deane Thompson's Grokking the Future: Science Fiction in the Classroom is particularly useful. It relates the use of specific science fiction books and stories with specific topics about the future.

Ideas for teachers can also be gained from some of the few books designed for classroom use. Judith Hellfach's four book set Future Studies: A Systems Approach is full of good articles and story excerpts that work around four futurist themes of environment, family, work and government. The books used as a set provide a unified look at the future and the role of change in our lives. Two books, Worlds in the Making: Probes for Students of the Future and Star Sight: Visions of the Future by Mary Jane Dunstan and Patricia Garlan are designed to be used by students in a future studies course. Both are full of stories, articles, poems, quotations and cartoons in conjunction with probing questions about the future.

The use of magazines and newspaper articles in a curriculum allows the

latest ideas and events into the classroom. The following curriculum uses such articles heavily. The articles are easily reproduced and can be replaced readily as more up-to-date material becomes available.

The most useful magazine is the World Future Society's semi-monthly publication, The Futurist. The articles are all useful and readable. The magazine Omni contains articles about issues of popular interest. Future, while of lesser academic quality, is written at level appropriate for slow readers.

Sources for articles about scientific topics can be gleaned from the American Association for the Advancement of Science's publication Science or from the more popularly written Science Digest. Current events and issues of immediate consequence are featured often and readably, not only in daily newspapers, but also in such weekly publications as Time, Newsweek, U.S. News and World Report and The Christian Science Monitor. In fact, useful articles about the future appear in a wide range of magazines, such as Playboy, Saturday Review, Harper's Esquire, Reader's Digest, Today's Health, and Changing Times. A watchful eye and a good pair of scissors will give the futures teacher most of the student reading he needs.

There are two organizations that a futures teacher should join. The World Future Society provides resources through its book service (most of the books mentioned so far are available through it) and through The Futurist. The National Council of Social Studies often publishes articles about futures teaching in its magazine, Social Education. Two recent articles of interest are "Infusing a Futures Perspective into Standard Social Studies Courses" by Betty Barclay Franks and Mary Kay Howard and "Resources for Future Studies" by Robert L. Ferguson and Patricia M. Proctor. In addition, N.C.S.S. has a special interest group for futures teachers.

The United States Government has two sources of useful material. The Congressional Clearinghouse on the Future publishes a monthly newsletter, What's Next, with information on articles, bills and meetings. The U.S. Government bookstore system carries many useful titles, such as Climate Change to Year 2000, Alternative Futures for Environmental Policy Planning: 1975-2000 and The Study of the Future: An Agenda for Research.

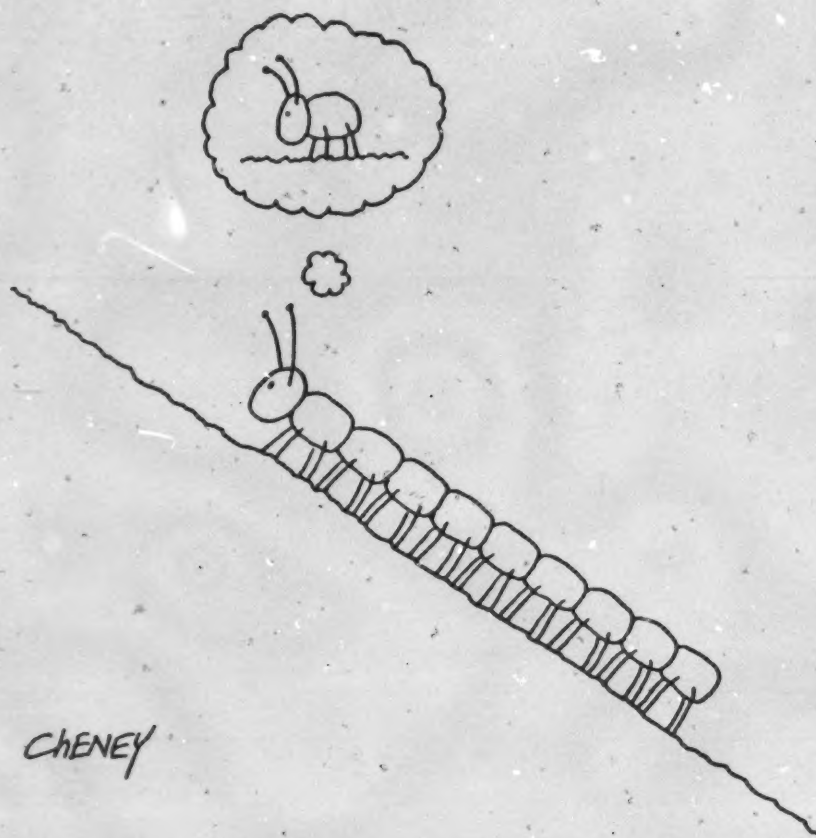
Visual experiences are particularly useful in conjunction with written futures material. Numerous films are available for classroom use. Several are used in the following curriculum. The World Future Society book, Films on the Future is a valuable source in this area. In addition, the magazine, Media and Methods, regularly lists names and addresses of film companies, both sales and rental. Most will send free catalogs, especially if requested on official stationery.

Slide or filmstrip study kits are extremely useful. Of particular value are several distributed by The Center for the Humanities, Inc. Among their titles are such slide-tape kits as "Media and Meaning: Human expression and Technology" (their best), "An Inquiry Into the Future of Mankind: Designing Tomorrow Today", "Toward the Year 2000: Can We Survive the Future" and "Biomedical Ethics: Four Case Studies". All come with study guides and suggested activities. Most companies will send kits to schools for preview. Media and Methods is useful here also. A useful listing of films and kits is Edward E. Greene's article in Preview, "Teaching Futuristics in the Classroom Today: A Multi-media Journey".

The use of gaming and simulations is another valuable classroom activity, allowing the student to role-play future decision making problems. One series, Future Planning Games, has several sets of one and two day games about topics such as future life, health, economics, government and law-enforcement. The

game of "Futuribles" by George Koehler is a card game requiring students to make and defend choices about future probabilities, priorities, causes and effects, and desirable societies. Both are used in the following curriculum. Another series of games is distributed by Interact. One of the most interesting is "Cope", a three-week game in which students form committees and action groups to make decisions about the future at ten year intervals.

The number of materials produced for teaching the future is increasing yearly. There are far more than outlined here. It is hoped that teachers will continuously improve their materials to fit changing times and realities. As with the future, there is no "set curriculum".



INTRODUCTION TO THE CURRICULUM

The following semester-long curriculum is specifically designed for use as a Senior Social Studies elective. The course, called simply "The Future" is one of five Senior electives paired with a required semester of U.S. Government at Clayton Valley High School in Concord, California. The 2400 students at the school are from predominantly white, middle to upper-middle class families in this San Francisco suburban community. Over half of the graduating students go on to two or four year colleges or universities.

The curriculum is designed in units of one, two or three week durations, which can be adapted as the situation requires. Because it is the nature of the future to be diverse, so too are many of the resources used in this curriculum. Articles, study kits, games and films, used in the curriculum will be replaced as more useful or up-to-date materials emerge. Although study areas and concepts are perhaps more stable, they too are subject to change because of the growth and expertise of the instructor, or by the specific interest areas of the students involved. For example, topics such as space or women's studies might be adopted at the request of the students. Several additional units follow the planned curriculum in this document. They may be substituted by the teacher if desired. In addition to unit variations, the timing of the semester around holidays, pep rallies, field trips, counseling days or senior picnic will affect the content and sequencing. Further, each class assumes its own personality and threshold of adjustment. These too will affect the content and level of difficulty of the material used.

The curriculum is designed to stretch the limits of the students. Parts of it are quite difficult and the students will need extensive guidance through the ideas and material. Other parts require less work, but they do require development of social skills, group processes, and decision-making

ability. The course is structured in such a way that intense material and activities are followed by a shift of gears to material and activities that require different, less strenuous effort on the part of the student. In fact, not only was effort made to vary the week to week pace, but also the day to day pace. All unit structures require the teacher to pace the units according to varying daily situations. The teacher must sense when to accelerate, when to slow down, when to growl, when to relax, when to admonish, when to not hear a remark, and when to laugh. Written curricula and theory are lost without these senses.

The curriculum is divided into five large segments, each representing some different emphasis of content or method. Preceding each segment are explanatory remarks and any objectives more specific than those for the course as a whole. A copy of the course outline for students is included in the appendix (Appendix A).

The sequencing of the units is important. The first unit is an introductory unit to increase awareness of future studies and futures thinking. The second unit deals with problems and concerns of a global nature, which could be familiar to some students. The third unit deals with problems closer to home and over which the student may feel more control. The student is introduced to planning and the nature of formal forecasting efforts. The fourth unit deals with highly personal choices and decisions the student may have to make in his own life. The fifth and closing unit leads to attitudes and mind-sets, life-styles and societal choices. The movement is from a more familiar world of physical futures toward less familiar ones of attitudes and mind-sets that also evolve.

The basic objectives of this course, stated simply and informally, are to help the student become aware that change will occur, that every change

in one area will change other areas, that the future can be directed and that he can participate in that direction.

In a recent article in the World Future Society Bulletin, Richard B. Stock cited the following objectives of futures education, noting their relative degree of acceptance by educators:¹

High Degree of Acceptance

1. To stimulate in students the ability to imagine and consider the implications of many alternative possible futures
2. To help students to realize that the future depends to a great extent on what is happening in the present
3. To enable students to recognize the impact of technology on society
4. To help students to realize how anticipated future changes may alter their own personal life-styles and aspirations
5. To help students search for and identify future trends
6. To strengthen students' practical ability to anticipate and adapt to change
7. To help students develop the attitude that they can be actively involved in influencing their own future
8. To help students to clarify and evaluate their own values and goals
9. To help students to clarify and evaluate society's values and goals
10. To help students understand the requirements for human survival
11. To help students develop an understanding of mankind as a single human community
12. To encourage students to commit themselves to action to improve present conditions in the world
13. To develop in students the ability to integrate ideas and information originating in diverse disciplines

Moderate Degree of Acceptance

14. To help students develop an optimistic attitude toward the future

15. To help students develop an understanding of the world as a single global system
16. To enable and motivate students to share their futures studies knowledge and insights with others
17. To help students develop human relations skills
18. To give students an understanding of some of the basic concepts and methods employed by practicing futurists
19. To help students appreciate the historic development and importance of human thought about the future

I can do little to improve on these, except for one very important change. I believe that we must "help students develop an optimistic attitude toward the future" as a primary goal. As a believer in the force of self-fulfilling prophecy, I think we must share with students a belief that we can make things work if we but act in that direction. We do a great disservice to adolescents by telling them that "these are the best years of your life". It is more fitting and productive to ask them to share with us the creation of a better future.

Part of the curriculum is designed for use with materials already available to this author from the school district and county media center. As materials have developed, I have recommended their purchase. Presently there are no speakers used as part of this curriculum, but as I find appropriate ones, they will be asked to speak. Such speakers would add appreciably to the class.

Continuous monitoring of student feeling and problems during the course is important. While many students are sufficiently vocal to let their reactions be known, others are more reticent. Thus a formal feedback mechanism will be used. To this end two activities are undertaken. At the end of the class period on Fridays or at the very beginning on Mondays, a class "process reflection" will take place. It may last two minutes or thirty,

as concerns dictate. This is also a good time for the teacher to share with students his rationale for the course. To facilitate such "process reflection" and to draw out comments from less vocal students, there will be a regular opportunity for students to fill out comment sheets (anonymity will be protected) answering such questions as these about the course: What were the things you liked this week? What were the things you disliked? What were the things you found confusing or didn't understand? How can we improve this course in the future?

Two on-going activities will take place throughout the course. The first of these is a journal with daily entries of student reaction to daily activities and ideas. One day may be a student's personal reaction to an article; another day may be his reaction to a quotation written on the chalkboard; for the last three weeks it will be his reasons for moves in the game of "Futuribles". The general topics will be assigned by the teacher. However, students are encouraged to write reactions not only to these, but also to other ideas and events that emerge. The journals will be collected periodically for evaluation by the teacher. The grades for the journals are based on entry appropriateness rather than just on scholarship. The specific nature of their responses are not as important as the reflections of thought and reactions to the topic at hand. Sample quotations for the journals are included as Appendix B.

The other on-going activity involved a simplified cross impact matrix (CIM). Topics are normally assigned weekly to students. Once each topic is developed by the students, the results are combined, either in class by the participants or by the teacher over the weekend. The findings are then placed on a large sheet of butcher paper, hung in the room and left for the entire semester. Most rooms in my school building peak inward toward a

central corridor and thus have about eight feet of blank wall above the chalkboard. The growing matrix then becomes a daily tool in our work, helping us to relate area to area, area to event and event to event. The basic interrelatedness of occurrences is the objective of the matrix.



"I think our problem is you're talking apples and I'm talking oranges."

CURRICULUM ACTIVITIES

The first segment introduces futures thinking and awareness. It is designed to be a blend of areas and teaching methods to introduce the idea of studying the future. Part of this effort is to get students to define where they are now, as well as where it is they might want to go. During this time students are given an opportunity to request alternate areas of emphasis if they have particular interests or concerns. If possible, accommodation will be made and some alteration will be made in the schedule. The materials taken from book sources are cut and pasted to edit unsuitable material (in most cases notes to the teacher) and duplicated for student distribution. Magazine articles are as well clipped and pasted to save paper and eliminate advertisements.

Objectives for the first segment in addition to those stated for the course:

1. To introduce the idea of looking and thinking ahead, and to help the student understand what he does believe about the future.
2. To establish the teacher not as an answer giver, but rather as a prober, provoker and inquirer; not as a source for truth, but rather as a source of information and resources.
3. To establish an atmosphere in which the student begins to recognize that his thinking and world perspective have importance and validity.
4. To introduce a wide range of future problems and possibilities.

FIRST WEEK

First day--

It is important on the first day to establish basic patterns and responses that are expected throughout the semester, as well as allowing

the students to glimpse the range of interests and concerns of the teacher. For this reason, once roll is called and students are advised that a seating chart will be in effect until the teacher learns names and for use by a substitute teacher, a simple exercise of information giving begins the class.

Each student is given a 5" x 8" file card and asked to respond with the following information, given one request at a time:

1. Name and grade
2. What newspapers do you read regularly?
3. What magazines do you read regularly?
4. What are the three best books you've read recently that were not assigned but were of your own choosing?
5. What are the three best TV programs on the air?
6. What are the three worst?
7. What were the three best movies during the last year?
8. What were the three worst?
9. If you could be anybody in the world, who would be your top three choices?

This completes the front side of the card. The process is done with some humor through examples given and responses to students. A later reading of these will quickly identify the degree of awareness and involvement about the world possessed by the students, as well as humbling the teacher to the task ahead.

On the back side the following questions are to be answered.

- A. If you could choose to change anything about today's world, what would it be?
- B. Why did you take this course and what do you expect to get out of it?

- C. Is there anything I should know about you, so that we can make things work in here? (Hard of Hearing?) (Poor Vision?) (Health Problems?)

Following this, students are assigned a short in-class essay. The topic: "What Do You Think the World Will be Like in the Year 2010?"

Second day--

1. Creation of a seating chart, for use only until names are learned and for a substitute teacher.
2. Review of course outline, explain that a journal will start next week.
3. Writing assignment--"What do you think you will be doing in the year 2010?" Allow about 10 minutes.
4. If time, discussion of composite of answers to questions 8, A and B--student anonymity assured--coupled with a few comments about polls in general.

Third day--

1. Showing and discussion of the film "Stranger Than Science Fiction"²
2. Last ten minutes--hand out and discuss the "Futures Metaphor"³ assignment (from Draper Kaufmann, p. 64). Written response due fourth day.

Fourth day--

1. Discussion and tabulation of "Futures Metaphor" responses.
2. Discuss difference between students' writings about the world and themselves in the year 2010. Their writing about the world will tend to show great and dramatic change, while their writing about themselves will tend to show slow and gentle change (their parents' world extended).
A. Why the difference?

- B. Can both be correct? Or could either?
- C. Can you bring the two together?
- 3. Bring in the notion here of alternative futures, that there are a lot of possibilities. Use chalkboard and growth curves and other diagrams to do so, based on their own thoughts.
- 4. Hand out the essay "41 Future Problems".⁴ As with all handed-out materials unless stated otherwise, to be read by next class session.

Fifth day--

- 1. Discuss "41 Future Problems" first as a group.
- 2. Break students into groups of about six (that will give six groups) to pick top ten problems and develop rationale for their choices.
- 3. After 15 minutes, return to one group for consensus. Discuss.
- 4. As class nears end, ask students to review the course outline and the problems (or any other problems that they perceive) and suggest any additions or changes in the areas to be covered in the course. Remind them that after all, it is their future too.

SECOND WEEK

First day

- 1. Discuss any course alterations or additions as brought up.
- 2. Lecture/discussion about making statements about the future.
 - A. Distribute and discuss the validity of selected predictions from a publication such as the National Enquirer, which publishes a page of prophecy twice a year.
 - B. Discuss the nature of predictions and forecasts, using Kaufmann,⁵ pages 66-69.
- 3. Distribute the article "Crystal Gazers of '39: How Near the Mark"⁶ (U.S. News and World Report, April 16, 1979). Students to write reaction in journal.

Second day--

1. Discuss the article. Also discuss fallacies and hazards of forecasting.
2. Introduce concept of a cross impact matrix using the automobile example from LaConte's book, Teaching Tomorrow Today,⁷ page 54.
3. Distribute article, "The 1980's: Problems, Promises and Surprises"⁸ (Changing Times, January, 1979). Journal reaction.

Third day--

1. Discuss Changing Times article.
2. With students, develop collective Cross Impact Matrix (CIM) on board, using topics of student life--transportation, jobs, food, television, school, dating, etc.--against topics raised in initial writing assignment, (such as energy shortage, overpopulation, war, famine, etc.), toned to fit into a viable context.
3. Have students copy and finish in journals.

Fourth day--

1. Show part one of study kit, "Towards the Year 2000: Can We Survive the Future?"⁹ Discuss ideas and issues, using questions from the study guide as starters.
2. Introduce class to CIM topics to be used throughout semester, allowing time for discussion and suggestions of additions and deletions. The planned topic areas are: Government, Legal framework and laws, Family life, Educational system, Work and jobs, Religion, Recreation, Other, and Quality of life.
3. Assign CIM topic for tomorrow "Everybody gets only five gallons of gas per week."

Fifth day--

1. Show part two of study kit, "Toward the Year 2000...", discuss.
2. As time permits, put replies to CIM on board, collect papers.
3. Hand out "How Technology Will Reshape Life in Years Ahead"¹⁰ (U.S. News and World Report, November 28, 1977). Journal entry.

THIRD WEEK

First day--

1. Discuss the completed CIM, evaluating it in the light of doing more and better next time.
2. Discuss any problems with journal entries and course in general.
3. Discuss "How Technology..."
4. Journal entry: "I'm interested in the future because I'm going to spend the rest of my life there "Charles F. Kettering.

Second day--

1. Show the film "Future Shock",¹¹ discuss.
2. Journal entry: reaction to film.

Third day--

1. Set up and participate in the simulation "Determining Priorities",¹² from the Future Planning Game, Facing the Ecology Crisis. Their personal choices are to be explained in the journal.

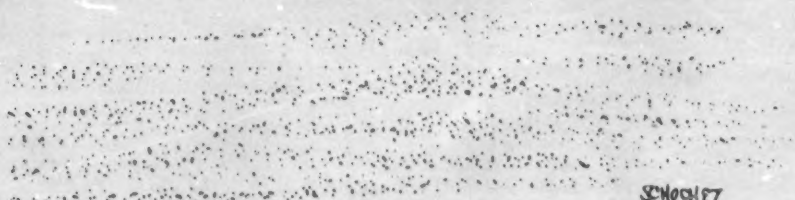
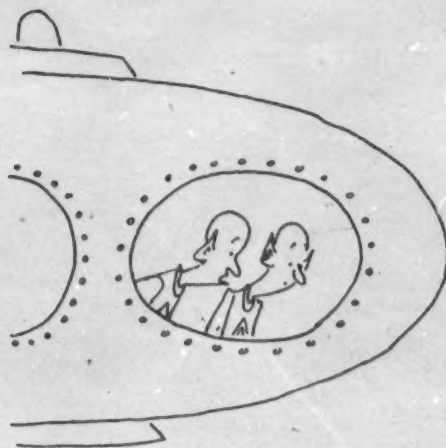
Fourth day--

1. The game continues and finishes.
2. Personal choices and reasons go into the journals..

Fifth day--

1. Have on board each article, film, kit, game done so far. Discuss validity and content and their feelings about each and the ideas. This is a participatory activity.
2. Revise schedule if necessary.
3. Distribute "1980 to 2100: 19 Scientific Schots-in-the-Dark Predicting Our World to Come"¹³ (Science Digest, January 1979).

Students are to write in journal which two are best and which two are worst and why.



3/4/87

"Of course they're civilized! Just look at that smog!"

The second segment, dealing primarily with our physical world, explores problem areas to which the student probably has been exposed previously. Included in this unit are selected parts of a report and a sixteen minute slide-tape presentation exploring the "CO₂ Effect", which is the potential effects and impacts of increasing CO₂ in the atmosphere. The report and presentation were part of a class project I and seven colleagues in the program put together in a course at the University of Houston at Clear Lake City in the Fall of 1978. I hope to share with the students the steps and methods we employed to produce the report and presentation.

Objectives for the second segment in addition to those stated for the course:

1. To introduce students to major problems of our physical world.
2. To lead students to an understanding of trends, growth curves, and exponential growth.
3. To further deal with the methods of futures research.
4. To further discuss means of coping with impending crises and understanding requisite trend alterations.

FOURTH WEEK

First day--

1. Review CIM and students reaction to Science Digest article. Pick up journals.
2. Take population quiz¹⁴ (Sierra Club Bulletin, November/December 1976). Discuss.
3. Introduce concepts of trends, using Kaufmann's exercises 6,7,8.¹⁵

Second day--

1. Distribute copies of all of chapter entitled "The Context of Change" from World Facts and Trends¹⁶ by John McHale. In addition, charts

from pages 34, 35, 38 and 87 will be distributed.

2. Read the chapter with students and discuss.
3. Return journals, assign reaction to article, "Twenty-two aspects of the Population Problem"¹⁷ (Futurist, October 1976).

Third day--

1. Show study kit, "The Science and Ethics of Population Control",¹⁸ discuss along with article. Journal entry a reaction to discussion.
2. Hand out article, "World Population Growth: Hopeful Signs of a Slowdown"¹⁹ (Futurist, October, 1978).

Fourth day--

1. Show part two of study kit, discuss along with article. Journal entry.
2. Assign CIM topic due tomorrow, "What if the Population of the United States Doubled in the Next Thirty Years?"

Fifth day--

1. Do CIM on the board, discuss.
2. Finish discussion of study kits and articles.
3. Discuss concepts of a value shift, using such as Jonas Salk's Epoch A and Epoch B from The Survival of the Wisest.²⁰

FIFTH WEEK

First day--

1. Discuss population CIM in relation to environment.
2. Show part one of study kit, "Man and His Environment in Harmony and Conflict"²¹ discuss.
3. Hand out abridged version of the chapter called "Environ Systems" from McHale's World Facts and Trends.²²

Second day--

1. Show part two of study kit, "Man and His Environment in Harmony and Conflict". Discuss along with McHale chapter.
2. Hand out article, "Exit Throwaway Era, Enter Recycling",²³ (U.S. News and World Report, March 19, 1979).

Third Day--

1. Show short film, "Pollution"²⁴ and discuss along with both article and McHale chapter.
2. Distribute article, "A Harvest of Neglect: The World's Declining Cropland"²⁵ (Futurist, April, 1979).

Fourth day--

1. Discuss the article.
2. Assign CIM topic, "What if the United States had a long severe drought?"
3. Distribute selected parts of "Intelligence and Strategic Alternatives Dealing with the Carbon Dioxide Effect".²⁶

Fifth day--

1. Show slide-tape presentation, "CO₂ and You".
2. Discussion of the content and methods about the report.

SIXTH WEEK

First day--

1. Discuss CIM on environments, relate to energy.
2. Show film: "Energy: A Matter of Choice".²⁷ Discuss.
3. Distribute article, "Energy Sources for the Future"²⁸ (Futurist, August, 1972).

Second day--

1. Discuss article, especially the "Fund" and "Income" concept.

2. Distribute article, "Energy and the Environment"²⁹ (Futurist, February 1974).

Third day--

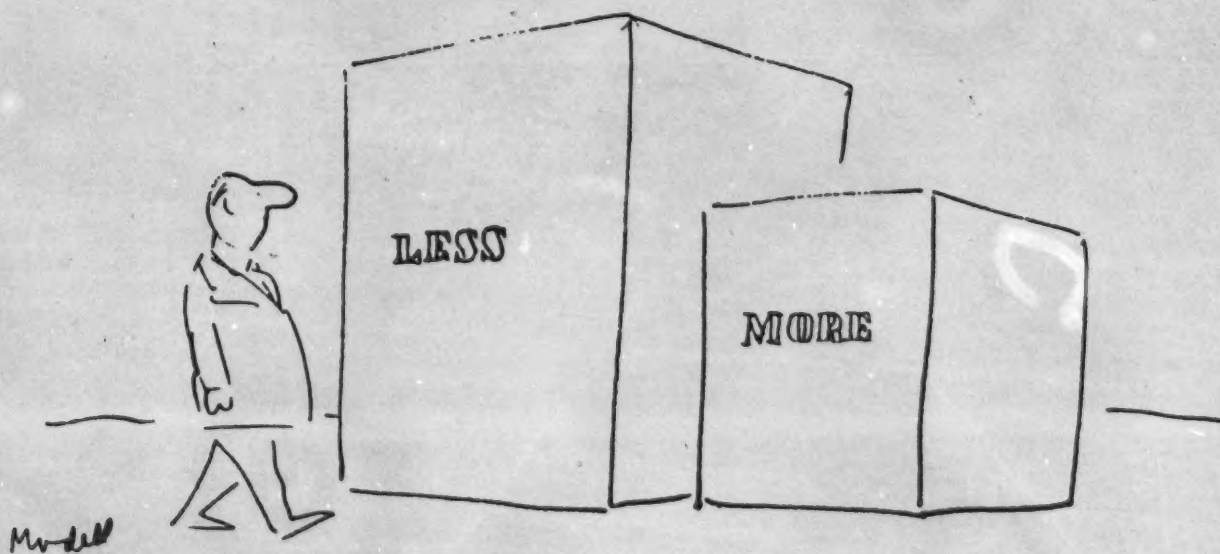
1. Show film: "Energy: Towards the Age of Abundance".³⁰ Discuss.
2. Distribute two articles. "Energy: Fuels of the Future"³¹ (Time, June 11, 1979) "Solving the Energy Dilemma"³² (Futurist, August, 1977).

Fourth day--

1. Put copies of ERDA's poster "Energy History of the United States"³³ on each wall (5 copies in all). Explain how the chart works. Discuss. (Page 20 of the accompanying booklet has questions for starters.)
2. Assign half the class to do a CIM: "100% shift to income energy by 2010". Other half the class does: "No shift to income energy sources, but continued fund".

Fifth day--

1. Entire class spent putting CIM on boards and drawing the next 100 years of United States Energy history.



The third segment has a two-fold purpose. The first part on urban development and planning allows a hands-on kind of approach to planning. The slide presentation for each portion is instructor produced from my travels, local scenes that apply and copying photographs from texts and other publications. This is of course a logical point to bring in an outside speaker, if possible. The second part is a study of a real world report to a governmental agency concerning the future. The language and style will admittedly be difficult for some, but exposure to such a document is important and outweighs the difficulty. Of the documents available, the transportation study was chosen because of its digestable size and its definite interest to adolescents.

Objectives for the third segment in addition to those stated for the course.

1. To introduce students to planning and formal forecasting.
2. To acquaint students with a professional forecasting document.
3. To introduce students to scenario building and alternative futures as forecasting tools.
4. To give students an opportunity to try planning themselves.

SEVENTH WEEK

First day--

1. Distribute maps to the class (Appendix C, D). Half the class should get one type, half the class the other. The students are then required to put various buildings on the map, loosely paralleling the growth of a city. The sequence is shown in Appendix E.
2. Going through all rounds, putting each up on the board as it is done, will probably take all period. With five minutes left, pick up all maps with student names on the back.

3. Then give each student a clean map and have him redo the city, now knowing all the requirements in advance. Due tomorrow.

Second day--

1. All of the city layouts from the class the previous day should be hung along the wall, numbered.
2. After collecting all the redone plans, evaluate those done in class, requiring written answers to the following questions:
 - a. Other than your own, in which city would you like to live?
 - b. Which the least? Why?
 - c. What's missing from the ones you like the least?
3. After collecting the answers, discuss as a group.
4. On the board, deal with the following:
 - a. Which businesses did you put in first?
 - b. Which are most important?
 - c. Rank them in the order in which they should appear.
 - d. Develop elements of a good city, based on observation so far.
5. Show slide presentation one, "Who is a City For?",³⁴ showing the wide diversity of race, types, and mix that must be dealt with in city planning.

Third day--

1. Hang up all the students' cities so that they intertwine to form a continuous whole (this may be done by rotation of the two maps so that the rivers and highways coordinate).
2. Discuss interrelationships, noting the need for scope in planning. (Invariably someone's dump will back up to someone else's school, etc.)
3. Set up student committees that deal with the following community areas.

- a. Transportation--roads, busses, traffic patterns
 - b. Sanitation--pollution, water, waste, hospitals
 - c. Education--schools, location, racial mix
 - d. Recreation--parks, bike paths, facilities
 - e. Housing--locations, design, planning
 - f. Government--law, fire, police, land use regulations
 - g. Commerce and industry--shopping, locations, parking
4. Each committee is to deal with the following questions about its ideal city and about a practical city (their own)
- a. What is the ideal way of doing things?
 - b. How is the way we do them in Concord different?
 - c. How would you plan differently to meet these problems?
 - d. What questions about each of these topics of concern should concerned citizens ask?

Fourth day--

- 1. Committees will meet, draw guidelines and questions to be asked in each area. Each committee will submit its list of questions to the teacher before the end of the period.
- 2. The magazine "The Inch"³⁵ will be handed out to each student as his group finishes. ("The Inch" is a quarterly publication of Texas Eastern Corporation. I have two classroom sets ordered). Students are to read the first 16 pages.

Fifth day--

- 1. Have the lists submitted by student groups combined, typed and duplicated for classroom distribution. Hand out and discuss.
- 2. Give major assignment for next week and for planning unit (Appendix F). Discuss.

EIGHTH WEEK

First day--

1. Present slide show number two, dealing with the history of cities, based on the reading in "The Inch". Discuss.
2. Answer questions about assignment due Friday.
3. Allow any additional time for students to work.

Second day--

1. Present slide show number three, dealing with types of city planning and planning organization. Discuss.
2. Answer more questions about assignment due Friday, allow time to work in class, helping students with assignment.

Third day--

1. Present slide show number four, dealing with the future of cities, discuss.
2. More time to work and answer questions.

Fourth day--

1. Entire period devoted to class time to work on cities.

Fifth day--

1. City projects are due at beginning of period.
2. Hang each city on the wall (name on back).
3. Students, after walking around and looking at each, must write the answers to the following questions.
 - a. Other than your own (and the one by your date for tomorrow's dance), which would you most like to live in? Why? Give specific answers.
 - b. What would you do to improve it?

NOTE: having a negative choice here, when work represents time and effort, would only have a negative effect and is thus not done. Not being chosen is enough.

4. General discussion, lots of strokes given here by teacher.

NINTH WEEK

First day--

1. General discussion of government reports, think tanks, etc.
2. Discussion of methods used, especially alternative futures and the scenario.
3. Assignment of the first thirty pages of Transportation in American's Future: Potentials for the Next Half Century.³⁶

Second day--

1. Discussion of the first thirty pages
 - a. Scenarios
 - b. Charts
 - c. R&D Opportunities
 - d. Alternative futures

Third day--

1. Discussion in depth of the Success scenario (p. 31-43) as stated and in relation to our own CIM topics.

Fourth day--

1. Discussion in depth of the Foul Weather scenario (pp. 45-55) as stated and in relation to our own CIM.
2. CIM for tomorrow's reading assigned.

Fifth day--

1. Discussion of Disciplined society scenario (pp. 57-67) as stated and in relation to CIM prepared.

TENTH WEEK

First day--

1. Discussion of a Transformation scenario (pp. 69-79) as stated and in relation to our CIM topics.

Second day--

1. Discussion of energy and urban structure chapters (pp. 81-98).

Third day--

1. Discussion of chapter "Regional Distribution of Population and Industry and Scenario Macroeconomics" (pp. 99-108).
2. Assign CIM topic for tomorrow "What if there were no private transportation?"

Fourth day--

1. Discussion of chapter "Other Plausible Events" (pp. 109-117).
2. Discussion of CIM topic and "wild-card" problems.

Fifth day--

1. Short paper due on how any one of the four presented scenarios will affect your own life in 2025 and what should be done now by both you and the government to prepare.
2. Discussion of R&D possibilities in more depth (back to pp. 6, 8-18).
3. Discuss article, "The Future of Transit in the U.S.: Some Projections"³⁷ (Futurist, June, 1978).

The fourth major segment deals with areas of a far more personal nature for students. Here they should be made aware that future changes not only affect their physical world, but also require continuous reevaluation of assumptions and belief systems. The aging unit will give students an opportunity to compare their best thinking with that of a college class.

Objectives for the fourth segment in addition to those stated for the course.

1. To help students realize the degree to which the future will affect their personal lives.
2. To further explore areas where students will have responsibilities for making choices.
3. To build a more complete scenario matrix, using time frames.

ELEVENTH WEEK

First day--

1. Wrap up CIM from transportation unit
2. Introduction to personal life unit--distribute article "Stages of Life: A Life-cycle Calendar"³⁸ (Futurist, February, 1979). Discuss.
3. Distribute article, "The Future of the Family: Intimacy in an Age of Lonliness"³⁹ (Futurist, February, 1979).

Second day--

1. Show part one of study kit "The Future of the Family",⁴⁰ discuss in light of the Cornish article.
2. Distribute article, "The Myth of the Vanishing Family"⁴¹ (Reader's Digest, February 1973).

Third day--

1. Show part two of study kit, "The Future of the Family", discuss in the light of both articles.

Fourth day--

1. Set up and participate in the simulation "Comparing Alternate Family Structures"⁴² (from the future planning game, "Determining Family and Sexual Choices", Greenhaven Press).
2. Assign CIM topic: "What if we shifted to a 60 per cent communal life style for living?"

Fifth day--

1. Finish game, discuss as a group.
2. Discuss CIM if time permits.

TWELFTH WEEK

MONDAY--

1. Review previous weeks topics.
2. Give students the introductory questionnaire (Appendix G).
3. Discuss questionnaire with students.
4. Have short levels of ethics discussion with class, using one of the questionnaire topics for example.
 - "I hate capital punishment" -- Expressive
 - "Capital punishment is wrong" -- moral
 - "Capital punishment is wrong because no one should be able to take another person's life" -- moral with reasons
 - "The right of each individual to life is more important than society's right to retribution" -- ethical
 - "Respecting the rights of others to live is a fundamental definition of being a human being" -- assumption base(examples left on board for reference and comparison for entire two weeks).

5. Distribute essay "Bio-Ethical Questions"⁴³ (Harper's, August 1978) to be read by tomorrow.
6. Call attention to quotation on the board (a daily item).

TUESDAY--

1. Review, discuss article "Bio-Ethical Questions", dealing with each point as students bring them up, being sure that each major heading is discussed.
2. Pose the following sample case study⁴⁴ (On board before class, covered by large poster used regularly for this purpose).
"Nancy, 16 years old, and a junior in high school, recently discovered that she is two months pregnant. She knows who the father is, but she has no desire to get married. She is considering three alternative courses of action and knows she must make her decision soon. She wants to make the decision that will be in the best interest of both her and her baby, if she decides to have it."
(From Futures Planning Game "Dealing with Death".)
3. Discuss case for a few minutes, then list reasons for each possibility on chalkboard.
4. Distribute ditto of reasons from game for discussion.
5. Have class vote on which they think is best for Nancy.

WEDNESDAY--

1. Review previous day.
2. Note content area of upcoming case study, call attention to two questions on chalkboard:
 - a. How do you get enough people to donate organs?
 - b. How will you decide who gets what?

Show Case Study Number One, from the Science and Mankind Study Kit,
"The Ethical Challenge: Four Biomedical Case Studies".⁴⁵

3. Discuss case study as a class, writing suggestions on chalkboard.
Have each student write his/her answers and reasons on a paper
to hand in. More discussion if time permits.
4. Vote on the best proposal for each question.
5. Distribute, introduce article "Psychosurgery at the Crossroads".⁴⁶
(Science News, May 14, 1977.)

THURSDAY--

1. Discuss previous day, noting levels of reasons, answering any
questions.
2. Discuss article "Psychosurgery at the Crossroads".
3. Assign CIM set on the topic "Behavior control by radio stimulation
of the brain". Due tomorrow.

FRIDAY--

1. Review previous day, collect impact study.
2. Note case study content, discuss question on board:
 - a. "What should society do to be certain new behavior control
techniques are used responsibly?"
3. Show case study number two from study kit.
4. Discuss case study as a class, write suggestions on the board,
break class into groups for ten minutes. Each group must return
with its agreed on best policy. Put policies on board. Vote on
the best.
5. Distribute article "Genetic Engineers. Now that they've gone too far,
can they stop?"⁴⁷ (Ms., June, 1976) 76.

THIRTEENTH WEEK

MONDAY--

1. Place impact results on board--discuss.
2. Discuss previous week, levels of reasoning, etc.
3. Discuss article "Genetic engineering..."

TUESDAY--

1. Note content of case study prior to showing, call attention to questions on board.
 - a. When a couple finds they are both carriers of a genetic disease, how should they decide what to do?
 - b. Should society make genetic screening compulsory or should it be left to individual choice?
2. Show case study three, discuss it as a class, write suggested answers on board. Have the class break up into groups, each developing the best corporate answers. Put policies on board, vote on best.

WEDNESDAY--

1. Review previous day, including aspects of "Genetic Engineers..." not yet covered.
2. Distribute "Concluding Comments"⁴⁸ prediction ditto and discuss the possibilities from them.
3. Assign impact area "What if we increased the average life span to 105?" Due tomorrow.
4. Assign short essay for Friday: "Other than the two impact areas, which of the possibilities from these two dittoes do you think will have the most impact on your life? Why? What are you going to do to make the impact easier to deal with? What should society do to prepare?"

THURSDAY--

1. Pick up impact sheets.
2. Explain case study topic, calling attention to question on board.
 - a. Who should make final decisions about death in situations like this?
3. Show case study number four, discuss it as a class. Have each student write his answer on paper and hand in. More discussion.
4. Vote on best solution to this dilemma.
5. Remind of written assignment tomorrow.

FRIDAY--

1. Pick up impact papers. Deal with these first. Put each on board and discuss again. Note which got the most attention.
2. Discuss the group impact sheets done yesterday, have sheet ready.
3. Distribute Code of Ethics⁴⁹ discuss.
4. Process reflection, if time permits.

FOURTEENTH WEEK

First day--

1. Wrap up CIM from the week before.
2. Show film: "Can We Live to Be 100?",⁵⁰ discuss.
3. Distribute copies of article, "The Impending Society of Immortals",⁵¹ pp. 175-179 ONLY. (Futurist, June, 1978). Also "Extending the Human Life-Span".⁵²

Second day--

1. Discuss the articles.
2. Distribute blank Cross-Impact Matrix with headings the same as those on the Fowles article (pp. 180-181), but without any spaces filled in.

3. Class assignment is to break into groups and fill in the spaces.
Class is told of source of matrix and that we will have a comparison test.

Third day--

1. All period activity of groups filling in every space and discussion of them.

Fourth day--

1. First half in groups, polishing and finishing.
2. Second half putting together a class matrix.

Fifth day--

1. Hand out Fowles article matrix, compare and discuss.



For the last fifteen class sessions, we will play a round of the game, "Futurables," each day. The first day will be an explanation of how the game works. Seven cards will be drawn by a class member. Each card will be reproduced onto an 8½" by 11" sheet of paper and posted. Each student will write his choice for the card to play in his journal and why he chose it. He will come to class the next day prepared to state and defend his choice with a short statement. After five to ten minutes of short statements each day, the students will vote on the card to be selected and another will be drawn. In this manner the entire class will have the same cards to respond to each day. We will proceed through 14 rounds as suggested in the instructions for the game.

The last three weeks will go further into areas of choice and of creating and participating in the future. Alternate life-styles, exploding awareness and influence and the need for changing institutions and laws to meet changing times will all be explored.

Objectives for the final segment that were not part of the stated course objectives.

1. To intergrate the information and thoughts that have constituted the first portion of the course in to a concept of future possibilities.
2. To further explore alternate futures and life-styles.
3. To recognize the possibility and need to create the future rather than simply allowing it to happen.
4. To further recognize the interrelatedness of events.

FIFTEENTH WEEK

First day--

1. Wrap-up of previous week.

2. Explain "Futuribles", do a few practice rounds, then select seven cards. Assignment for tomorrow is to select the one most likely to occur.
3. Distribute "Telecommunications in the Year 2000"⁵³ (Futurist, April, 1979).

Second day--

1. Futuribles--select the card least likely for tomorrow.
2. Show part one of study kit "Media and Meaning: Human Expression and Technology".⁵⁴ Discuss along with article.

Third day--

1. Futuribles--select the card with your most negative feelings.
2. Show part two of the study kit, discuss.
3. Distribute article "The Human Side of Tomorrow's Communications"⁵⁵ (Futurist, April, 1979).

Fourth day--

1. Futuribles--select the card about which you have the most positive feelings.
2. Discuss article and study kits.
3. Assign CIM "What if we developed a machine that could think better than man?"

Fifth day--

1. Futuribles--select a card that would be either a cause or effect of the card played yesterday.
2. CIM on board.
3. Wrap up of communications and media.

SIXTEENTH WEEK

First day--

1. Futuribles--select a card that is consistent with your values.
2. Show study kit "An Inquiry Into the Future of Mankind: Designing Tomorrow Today."⁵⁶ Discuss.
3. Distribute article "Social Inventions"⁵⁷ (Futurist, August, 1973).

Second day--

1. Futuribles--select a card that is most inconsistent with your values.
2. Discuss the article.
3. Make major assignments for next two weeks, based on "Social Inventions"

A. Three assignments, due on three separate days, based on three concepts of social inventions from the article.

- i. Due in two days (Thursday), your own set of new laws necessary in the future--at least three. Describe their purposes.
- ii. Due next week (Tuesday), your own set of new organizations that will be necessary in the future--at least three. Describe their purposes.
- iii. Due next week (Wednesday), your own set of new procedures necessary in the future--at least three. Describe their purposes.

B. A major paper due the last Friday of the course (in ten days). The assignment is to "Describe the world that you hope exists in the year 2010 and how we got there. What physical changes will occur? What social and value changes will occur? What psychological changes will occur? Further, describe the three most likely roadblocks to that society and how they might be overcome. You may use any of the material you develop for the

shorter assignments on social inventions.

4. Hand out article, "Voluntary Simplicity: Life-Style of the Future?"⁵⁸ (Futurist, August, 1977). To be read by Friday.

Third day--

1. Futuribles--select a card for which you can describe the necessary antecedents.
2. Show part two to the study kit "An Inquiry Into the Future of Mankind: Designing Tomorrow Today".
3. Discussion of study kit and article "Social Inventions".

Fourth day--

1. Futuribles--select the card for which you can describe the probable consequences.
2. Three new laws due--put many on board, discuss at length.
3. Assign CIM "What if it became necessary to reduce the wealth of the United States to keep the rest of the world alive?"

Fifth day--

1. Futuribles--select the card for which you could write the best scenario.
2. Discuss CIM.
3. Discuss article "Voluntary Simplicity".
4. Distribute article, "The Coming Transformation"⁵⁹ (Futurist, 1977). To be read by Monday.

SEVENTEENTH WEEK

First day--

1. Futuribles--select the cards that combine best to form a new social or material invention of your own.

2. Show study kit "Changing Images of Man".⁶⁰ Part one. This study kit was developed by the author as part of course requirements in the course of the same name. This portion traces human development up to today and outlines some possible obsolete paradigms. Part two has not yet been assembled. Part one should be a fine accompaniment for the Harman article.
3. Discuss article and slide presentation. Note: Part two of the Harman article (Futurist, April, 1977) will be available but not required.

Second day--

1. Futuribles--select a card that you believe that you have the most power to influence.
2. Put up on the board and discuss the new organizations proposed by students.

Third day--

1. Futuribles--select the card that describes the future to which you are the most committed.
2. Put up on the board and discuss the new procedures proposed by students.
3. Distribute article "Recycling People: Work-Sharing Through Flexible Life Scheduling"⁶¹ (Futurist February, 1978).

Fourth day--

1. Futuribles--select the card that represents your top priority concern.
2. Discuss article "Recycling People..."
3. Time to work on paper due tomorrow.

Fifth day--

1. Major paper due, collect, discuss characteristics of future society and how to get there.

EIGHTEENTH WEEK

First day--(last class day)

1. Wrap up, discuss final exam.
2. Discuss graded papers, ideas.
3. Process reflection.
4. Journals due.

Second, Third, Fourth days--

1. Finals given two each day during this time. Each final is one and one half hour long.

2. Final Exam.

A. (30 minutes) This question has two parts. We have read a large number of articles during the semester.

1. First, you are to select the article that you found the best and tell why you think so.
2. Second, you are to select the article that you liked least and tell why you didn't like it. (By like least here I mean the one with the content or tone that you most disagreed.)

B. (30 minutes) This question also has two parts. We have filled in a lot of CIM squares during the semester. Look now at the matrix on the wall and:

1. Select the two squares that you think are the most accurate and tell why.
2. Select the two squares that you think are the least accurate and tell why.

C. (30 minutes) In your major paper you outlined a world you hoped for in 2010, including changes and roadblocks.

1. Explain what adaptive strategies you plan to use in the

BEST COPY AVAILABLE

next 30 years to get yourself there.

2. Explain what steps and actions you expect to take to help bring about your hoped for world.



C. F. Nelson

"And what did we do with our ten thousand year warm spell between ice ages? Nothing!"

POSSIBLE ALTERNATIVES TO THE CURRICULUM

There are many topics and activities that could be substituted for or added to those that are already in the curriculum. Several ideas, as well as appropriate material are outlined here.

Possible alternative activities include simulations or gaming. One of these is "Cope" by Interact. Cope is a four week game dealing with the future and future concerns. The game does require extensive bookkeeping by either the teacher or an aide. The overview from the teacher's guide is quite accurate:

"Cope simulates five future time periods in an imaginary think-tank city. After examining the problem of coping with change, students experience the stresses and anxieties caused by rapid change. Working to accomplish many tasks and to solve several problems, they face a future world's technology that is changing so fast that they have trouble keeping up with it. By the end of the simulation, students realize that the future is coming faster than they think and that human beings will have to learn to adapt and create in order to survive in this fast-changing world".⁶²

There is a wide range of other games available, such as "New Town",⁶³ "Future Shock",⁶⁴ "Futura City",⁶⁵ "The Planet Management Game",⁶⁶ and "Global Future Game".⁶⁷ Full information can be obtained from the manufacturers.

Several other topics may arise as interesting and worthwhile investigations--science fiction, space exploration, extra-terrestrial intelligence, women's studies, man's relationship to robots and computers, and future work patterns. The following are a few suggested resources for each topic that are suitable for secondary students.

Science fiction is best utilized as a "literature of the future" by pairing it with scenario writing. The creation of a complete scenario can be aided by the construction of cross impact matrixes. Writing Popular Fiction⁶⁸ by Dean Koontz and Ben Bova's recent article "Science Fiction and Reality"⁶⁹ are both useful for guidelines for writers. Fifty Short Science Fiction Tales⁷⁰ is a superb book of very short stories for examples. The study kit,

"Science Fiction: From Jules Verne to Ray Bradbury"⁷¹ gives an excellent overview.

Many students are interested in the possibilities of extra-terrestrial life. Although there is a lot of popular speculation about this, there are serious works concerning the possibility of other forms of intelligence. This unit could be the "core" of talking about "wild cards" (possibilities that might alter all of our best forecasts). Perhaps the best writer in this area is Carl Sagan. A recent Book Digest interview⁷² gives some of his ideas. John Billingham has written a recent article in the popular magazine Future Life⁷³ that could be used. The problems of such "wild cards" are outlined by Michael Thatcher in Human Behavior.⁷⁴ Another interesting discussion of the possibilities of even earlier contact with other worlds is the film "In Search Of Ancient Astronauts".⁷⁵

Space exploration and colonization has distinct appeal for adolescents. The latest information can be gleaned from daily newspapers and weekly magazines, or obtained directly from NASA. Three recent articles in The Futurist outline potential activities. Maruyama Magoroh,⁷⁶ Paul Csonka,⁷⁷ and Gerard K. O'Neill⁷⁸ discuss space colonies and stations. Space Colonies,⁷⁹ a Co-Evolution Quarterly book, outlines a large number of concerns and possibilities. A differing point of view is offered by Jib Fowles in "The Improbability of Space Colonies".⁸⁰ A good source of further information is the L-5 society's newsletter.⁸¹

The women's movement has strong potential for the future. It envisions a truly egalitarian society. Although little work has been done researching the consequences of equal status for men and women, there are many resources available, particularly from women's organizations. Material from other sources includes the "ERA Game",⁸² a Future Planning Game that sets up a pro

and con debate over the ratification of the Equal Rights Amendment and two study kits of slides and tapes, "Man and Woman: Myths and Stereotypes" and "The Re-Education of Men and Women: Creating New Relationships".⁸³ The HEW booklet, "A Student Guide to Title IX"⁸⁴ will add a sense of personal involvement. One source book from the National Organization of Women, Female Studies VIII: Do It Yourself Women's Studies⁸⁵ is a collection of teaching material about women's issues.

The relationship of man and machine is a suitable topic for future inquiry. A wide range of articles and material is available. The book, Of Men and Machines,⁸⁶ is a good assortment of articles, fiction, and poetry about man's relationship to machines. A good fictional approach is I, Robot,⁸⁷ a series of adventures of men and robots. Useful articles include "The Automated Office"⁸⁸ from The Futurist, "Robot Lib"⁸⁹ from Penthouse, "Computer Lib"⁹⁰ from Omni, and a frightening article, "Cybernetic War",⁹¹ also in Omni. The film, "Ultimate Machine"⁹² gives examples of machines in action.

The world of future jobs and work are directly applicable for students. The unit should come late in the course after many alternate futures have been explored. Students should write their own career scenarios in the light of what they believe to be the most likely future. Articles that would be helpful here are "Work in the Year 2001"⁹³ from The Futurist, "Careers For Today and Tomorrow"⁹⁴ from the Counselor's Information Service and "Jobs With the Brightest Future"⁹⁵ from Changing Times. In addition, the U.S. Labor Department's Bureau of Labor Statistics has put out Occupational Outlook Handbook, 1977-78.⁹⁶

Neither the suggested alternatives nor the suggested sources are exhaustive. Applicable materials are being produced or written every day. Pertinent information is available from a wide variety of sources. There is

no end to applicable topics. The classroom teacher must keep in mind that virtually every area of human life stands to be affected by future developments, and that all of humankind's endeavors are interdependent and interactive. It is the responsibility of educators to ensure that this interdependence and interaction is understood by students so that desirable and possible life-choices are made.



*"We must be making the transition from ape-man to modern-man ...
I'm getting ulcers."*

CONCLUSION

The curriculum presented in this project has, of course, not totally passed its real test. The final test will come in the Fall when I return to a high school classroom to apply it.

The Mt. Diablo Unified School District in Concord, California has granted me a sabbatical leave to participate in the Studies of the Future program with the intent that I bring back to my school and district an enlarged futures perspective and improved material for teaching future studies. I do not believe that they will be disappointed.

Further, I do not believe that the students who elect to take future studies will be disappointed either. The curriculum is varied, provoking and interesting. My success with the course will be directly related to how well I apply what I have learned during this sabbatical. I expect more comments like those cited by my school's curriculum vice-principal in his letter of support for my sabbatical application:

"Before coming into this class, I didn't think of some of the things that we talked about. Now I can see different points of views and possible solutions to future problems. I think everyone should take a course like this one so that they will be prepared for the future and be able to cope with the future society."

"I feel there should be a whole category on subjects in the future with a professional futurist teaching the class."

"If you learn how to foresee the future by studying it, you may be able to change things you don't want to happen - or vice versa."

"I feel that the school systems will make this course a mandatory course for high school students to graduate from high school."

"You can learn about what sort of problems to expect in the future and learn how to deal with some of them. A lot of people aren't ready for the future and if they took this type of class it would really make them think more about what to expect and what we can do now to make the future better."

"It needs to be a longer course so we can go into more detail."

"I think that a person after going through "Future" class should be better able to cope with the Future."

"I feel that a class that deals with the future is a very good idea because it can help you deal with plans and problems you may run into in your lifetime. I think they should have several types of future classes that will deal with different styles of society."

These are just a few of the comments that have been received in my previous work in futures.

My year in Houston as a participant in the Studies of the Future program has given me access to good futurist minds and resources. Both the formal class time and informal discussions with teachers and fellow students have been productive and stimulating.

Although some of the materials used in the curriculum are from the course that I taught in the 1977-1978 school year, most of the materials and insights come directly from my experiences this year in the Studies of the Future program.

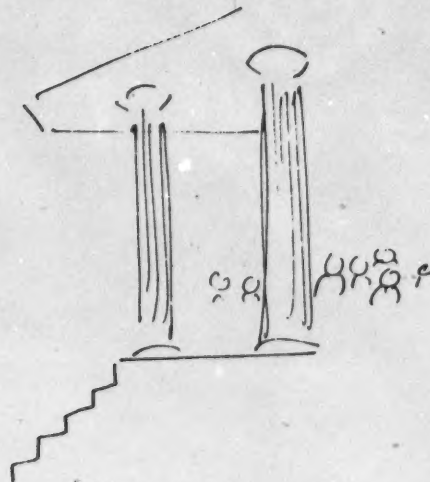
Searching for material, both for personal and professional growth has taken me through city, county, and university sources. In addition to information gained directly from the program, I have increased my skills of gathering information and finding resources. These skills should insure continued growth of both a personal and professional nature.

Five years from now, many of the materials used in this curriculum will have been replaced by more up-to-date or improved materials. However, the exploration of ideas and the spirit of inquiry that lie at the core of this future studies curriculum can only grow.

I must thank the University as a whole for a positive experience. Not only the futures faculty, but also the support personnel in administrative, audio-visual and library services have been helpful and competent.

BEST COPY AVAILABLE

Particular appreciation goes to Fred Kierstead for his guidance and assistance with this curriculum, to Mark Markley for broadening my resource base and widening my scope of awareness, and to my wife, Diane, for sharing another year of growth with me.



"At last! Now we can make educated guesses."

APPENDIX A

Course Schedule: Contemporary Problems (The Future)

- 1st week--Introduction to Futures and Explanation of Course (What is this anyway?)
- 2nd week--Further introductory material (What am I doing here?)
- 3rd week--Introductory material (last chance to make major schedule change)
- 4th week--Population problems (It doubles every 36 years)
- 5th week--Environmental concerns (7 pounds of garbage per person per day?)
- 6th week--Energy awareness (Can the sun really run air conditioning?)
- 7th week--Cities and living space (A dream house in the suburb\$)
- 8th week--Urban Planning (Design your own Concord)
- 9th week--Transportation (How will we get from here to there)
- 10th week--Transportation (How will we get back when the pump's dry?)
- 11th week--Future of the Family (What kind of family will you have?)
- 12th week--Bio-Medical Futures (Will you like your clone?)
- 13th week--Bio-Medical Futures (Will your clone like you?)
- 14th week--Aging and Prolongevity (Will you live forever? Do you want to?)
- 15th week--Communications (Is TV a salesman with a foot in your head?)
- 16th week--Social Inventions (Whatever works)
- 17th week--Concluding activities (Design your own society)
- 18th week--Final exam (Burp)

Your responsibilities:

1. Regular attendance is required.
2. However, you will not pass on attendance alone. You will have to meet several assignments.
 - a. You will be expected to keep a daily journal and write about topics assigned you. There are no right or wrong responses to

the topics, just a requirement that you respond. In addition, any thoughts you have about the day's discussion may go into the journal.

- b. We will have weekly written assignments. You should plan on getting those done.
- c. There will be several larger projects, and a final exam.
- 3. You will also be heavily evaluated on the basis of class participation. This means that you should plan on reading most of the assignments.

My responsibilities:

- 1. Regular attendance is required.
- 2. However, I cannot succeed on attendance alone. I have several obligations to you.
 - a. I will be expected to come to class prepared to discuss intelligently with you about our futures. This means I will have to have read and thought about every day's activities.
 - b. I will be expected to grade and comment on your work in the class in a very short period of time, so that we have the benefit of knowing immediately how we are doing.
 - c. I am responsible for keeping the class interesting most of the time (so are you).
 - d. As are you, I am responsible for treating each of you as unique human beings, each with different contributions to make to the world.
- 3. I expect to be reminded of my responsibilities (kindly, of course), just as I will remind you.

APPENDIX B

POSSIBLE QUOTATIONS FOR DAILY JOURNAL ENTRY

The trip through the internal mappings of the nervous system is far more exciting, far more dangerous, and far more important than the journey to the moon.

John Brockman

The problem is that we will trust just about any scientist to build a spaceship. We aren't even too fussy about who builds the super-bombs, who makes the deadly gasses...But who trusts which scientists to supervise gene selection by controlled mating? Which scientist do we trust enough to have him proportion out genes and chromosomes or alter the acids that transmit hereditary characteristics??

Carl T. Rowan

Under attack are many of the traditional assumptions that underline not only biology and medicine but all science and technology. Among them are the beliefs that scientific progress is automatically good, that what is medically beneficial to the individual is necessarily good for the society, and that scientists are the best judges of the direction in which their research should go...

Jane E. Brody and

Edward B. Fiske

It is a good thing Heaven has not given us the power to alter our bodies as much as we would like to and as much as our theories might happen to require. One man would cover himself with eyes, another with sexual organs, and a third with ears, etc.

George C. Lichtenberg

To every man is given the key to the gates of heaven: the same key unlocks the gates of hell.

Buddhist saying

Evolution is founded in variety and creates diversity; and of all animals, man is most creative because he carries and expresses the largest store of variety. Every attempt to make us uniform, biologically, emotionally, or intellectually, is a betrayal of the evolutionary thrust that has made man its apex.

Jacob Bronowski

It is foolhardy to eliminate genetic variability. That is our evolutionary bankroll, and we dare not squander it. Species that ran out of variability ran out of life.

Gerald McClearn, geneticist

The chess-board is the world, the pieces are the phenomena of the universe, the rules of the game are what we call the laws of Nature. The player on the other side is hidden from us. We know that his play is always fair, just and patient. But also we know, to our cost, that he never overlooks a mistake, or makes the slightest allowance for ignorance.

Thomas Huxley

The ethical problems...raised by the population explosion and artificial insemination, by genetics and neurophysiology, and by the social and mental sciences are at least as great as those arising from atomic energy and the H-bomb.

W.H. Thorpe

Western civilized man is a Stone Age organism trying to exercise 21st century power in a world of 18th century institutions, based on medieval humanistic principles.

John S. Lambert

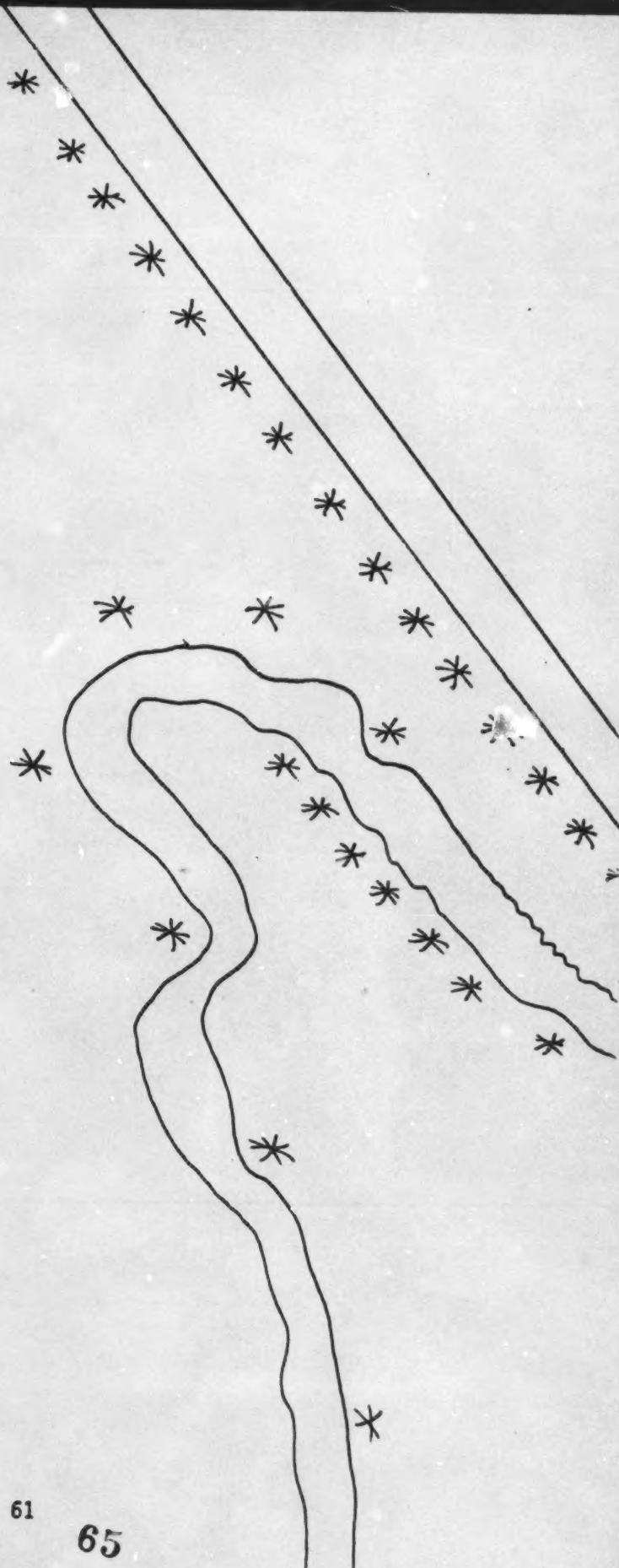
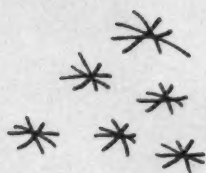
It's not enough that we do our best: sometimes we have to do what's required.

Winston Churchill

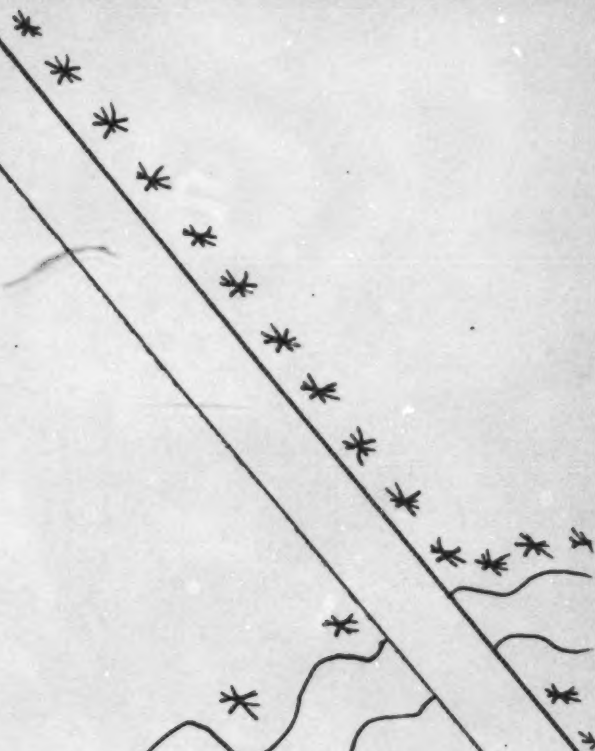
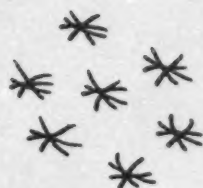
A pebble can affect the entire ocean.

Pascal

APPENDIX C



APPENDIX D



APPENDIX E

Round One--

Put in your house and any necessary road to it.

Round Two--

Put in five more houses and necessary roads.

Round Three--

Put in 20 more houses and one business (your choice of type), and all necessary roads. Continue to put in roads throughout the exercise.

Round Four--

Put in 30 houses, one school, three businesses, and one factory. Label the businesses and factory.

Round Five--

Put in 20 houses, one apartment building, three businesses, one church and one garbage dump.

Round Six--

Put in 30 houses, two apartment buildings, two businesses, two factories, and a new school.

Round Seven--

Put in 40 houses, three apartment buildings, four businesses, two factories, another church, and a civic building.

Round Eight--

Put in 50 houses, one power plant, and a shopping center.



House



Apartment



Business



Church



Dump



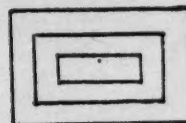
Power Plant



School



Civic Building



Shopping Center

APPENDIX F

ASSIGNMENT

1. You have just been given a map of Concord with only topographical features and the present city boundaries. If you lose this one, you must pay for your second one (\$1.25 each).
2. Your assignment (due one week from today) is to draw up your own plan for an ideal Concord if you could start from scratch and redo it, based on our class discussion. You are a committee of one to plan for: (here the actual population and breakdown by age, etc. would be given).
3. Your plan must show houses (·); small businesses (α); large businesses (≡) identified; shopping centers (actual relative size), streets (—); roads (==) and other appropriate buildings, each identified in a key.

I suggest that you do all of your planning on separate pieces of paper and not mark on the map until you are ready to do a final presentation of your plan.

4. On a separate piece of paper, you must write, in no more than a half page each, telling how you dealt with each of the following areas in your New Concord.
 - a. transportation
 - b. sanitation
 - c. education
 - d. recreation
 - e. housing
 - f. government
 - g. commerce/industry
 - h. ethnic mix
 - i. age grouping

5. Your grade will be based on the following:

25% for getting it in on time, completed

25% for your written explanation

25% for how well you followed class produced standards

25% for visual presentation, neatness, clarity

If your city is late, you will be docked 5% per school day.

If you have an excused absence on Friday, the city is due when you first return.

If you are uncertain about getting all 100 points, you may do extra credit work for 5% per article, if and only if you have completed the basic assignment on time. For extra credit, you must write a summary of the article, relate it to our discussions of these two weeks, and develop two good test questions for it.

APPENDIX G

Instructions: The following statements present conflicting comments about death and medical issues. Decide which statement about them is most appropriate and reflects your thinking.

- A. Completely true
- B. Partially true
- C. Partially false
- D. Completely false

- ___1. Any individual, over 21, should be able to end his/her life with society's approval.
- ___2. The relief of pain is sufficient reason for euthanasia in the case of a terminally ill patient.
- ___3. Laws permitting mercy killing would make it possible for unscrupulous relatives to kill family members for profit.
- ___4. Research that would stop the aging process, allowing people to live indefinitely, would be a boon to mankind.
- ___5. Capital punishment saves more lives than it takes.
- ___6. No unwed woman should be able to have an abortion without the father's consent.
- ___7. Deformed babies should be put to death for the benefit of all concerned.
- ___8. A living human fetus should never be used in laboratory research.
- ___9. People should have no control over what happens to their transplantable body parts after death.
- ___10. People who carry serious genetic defects should not be allowed to reproduce.
- ___11. A person who is committed to a mental institution should not have any say regarding his/her treatment.

CURRICULUM NOTES

¹Richard B. Stock, "Future Studies in U.S. High Schools", World Future Society Bulletin, May-June 1977, pp. 1-6.

²"Stranger Than Science Fiction", part of CBS' Twenty-first Century series, distributed by McGraw-Hill Films.

³Draper Kaufman, Teaching the Future: A Guide to Future-Oriented Education, (Palm Springs: ETC Publications, 1976) page 64.

⁴Peter Schwartz, Peter J. Teige and Willis W. Harman, "41 Future Problems", The Futurist, October, 1977, pp. 274-278.

⁵Kaufman, pp. 66-69.

⁶"Crystal Gazers of '39: How Near the Mark", U.S. News and World Report, April 16, 1979, pp. 72-74.

⁷Ronald T. LaConte and Ellen LaConte, Teaching Tomorrow Today: A Guide to Futuristics. (New York: Bantam, 1975) p. 54.

⁸"The 1980's: Problems, Promises and Surprises", Changing Times, January, 1979, pp. 7-11.

⁹"Towards the Year 2000: Can We Survive the Future" Center for Humanities, Inc. 2 Holland Avenue, White Plains, N.Y., 10603, 1973.

¹⁰"How Technology Will Reshape Life in Years Ahead", U.S. News and World Report, November 28, 1977, pp. 62-68.

¹¹"Future Shock", produced by Warner Brothers, Distributed by McGraw-Hill Films.

¹²David C. Bender and Gary E. McKuen, "Determining Priorities", Futures Planning Games, (Minneapolis: Greenhaven Press, 1972.)

¹³"1980 to 2100: 19 Scientific Shots-in-the-Dark Predicting Our World to Come", Science Digest, January, 1979, pp. 34-41, 76.

¹⁴Judith Kunofsky, "What Do You Know About Population", Sierra Club Bulletin, November-December, 1976 pp. 17-18.

¹⁵Kaufman, pp. 82-90.

¹⁶John McHale, World Facts and Trends, (New York: The Macmillan Co., 1972) pp. 1-6.

¹⁷Lester R. Brown, Kathleen Newland and Bruce Stokes, "Twenty-two Aspects of the Population Problem", The Futurist, October, 1976, 238-245.

¹⁸"The Science and Ethics of Population Control", Center for Humanities, 1975.

¹⁹Rafael M. Salas, "World Population Growth: Hopeful Signs of a Slowdown" The Futurist October, 1978, pp. 276-282.

²⁰Jonas Salk, The Survival of the Wisest. (New York: Harper and Row, 1973).

²¹"Man and His Environment in Harmony and Conflict", (Center for Humanities, 1972.)

²²McHale, pp. 13-30.

²³"Exit Throwaway Era, Enter Recycling", U.S. News and World Report, March 19, 1979, pp. 58, 60.

²⁴"Pollution; produced and distributed by University of Southern California.

²⁵Lester R. Brown, "A Harvest of Neglect: The World's Declining Cropland", The Futurist, April, 1979, pp. 141-151.

²⁶William R. Kepner, Jr., et. al., "Intelligence and Strategic Alternatives Dealing With The Carbon Dioxide Effect", unpublished paper prepared by members

of the course "Seminar in Futures Research" (SOCI 5931) at the University of Houston at Clear Lake City December, 1978.

²⁷"Energy: A Matter of Choice", Encyclopedia Britannica Corporation.

²⁸Earl Cook, "Energy Sources for the Future", The Futurist, August, 1972, pp. 142-152.

²⁹Vaclav Smil, "Energy and the Environment", The Futurist, February, 1974, pp. 4-13.

³⁰"Energy: Toward an Age of Abundance", Encyclopedia Britannica Corp.

³¹"Energy: Fuels of the Future", Time, June 11, 1979, pp. 72-76.

³²James C. Coomer, "Solving the Energy Dilemma", The Futurist, August 1977 pp. 228-230.

³³"Energy History of the United States" Energy Research and Development Administration, GPO, 1975.

³⁴William R. Kepner, Jr., "The City", an unpublished four-part slide presentation about cities from a local, national, world, and future perspective.

³⁵"The Inch", formerly published quarterly by Texas Eastern Corporation for stockholders, Summer, 1972.

³⁶U.S. Department of Transportation, Transportation in America's Future: Potentials for the Next Half Century, Part One. National Technical Information Service, 1977.

³⁷Larry Bell, "The Future Of Transit in the U.S.: Some Projections" The Futurist, June, 1978, p. 171.

³⁸Robert Selim, "The Stages of Life: A Life-Cycle calendar", The Futurist, February, 1979, pp. 60-61.

³⁹Edward Cornish, "The Future of the Family: Intimacy in an Age of Loneliness", The Futurist, February, 1979 pp. 45-58.

⁴⁰"The Future of The Family" Guidance Associates 757 Third Avenue, N.Y. 10017.

⁴¹Lester Vellie, "The Myth of the Vanishing Family", Reader's Digest, February, 1973 pp. 111-115.

⁴²David L. Bender and Gary E. McCuen, "Comparing Alternate Family Structures", Future Planning Game: Determining Family and Sexual Choices. Minneapolis: Greenhaven Press, 1973.

⁴³Leonard C. Lewin, "Bio-Ethical Questions", Harper's, August, 1978, pp. 21-22, 28-29.

⁴⁴David L. Bender, "Abortion: A Teen-ager's Dilemma", Futures Planning Game: Dealing With Death. (Minneapolis: Greenhaven Press, 1976.)

⁴⁵"The Ethical Challenge: Four Bio-Medical Case Studies", (The Center for Humanities, 1973).

⁴⁶Joel Greenberg, "Psychosurgery at the Crossroads", Science News, May 14, 1977, pp. 314-315, 317.

⁴⁷Caryl Rivers, "Genetic Engineers: Now That They've Gone Too Far, Can They Stop?", Ms., June, 1976, pp. 49-50, 112, 114, 116, 120.

⁴⁸Allen R. Utke, Bio-Babel: Can We Survive the New Biology?, (Atlanta: John Knox Press, Inc. 1978) pp. 109-111.

⁴⁹Robert M. Veatch, Case Studies in Medical Ethics. (Cambridge, Mass: Harvard University Press, 1977.) p. 196.

⁵⁰"Can We Live To Be 100?", part of CBS' Twenty-First Century series, distributed by McGraw-Hill Films.

⁵¹Jib Fowles, "The Impending Society of Immortals", The Futurist, June, 1978, pp. 175-181.

⁵²"Extending the Human Life-Span", The Futurist, June, 1978 pp. 182-184.

⁵³Joseph P. Martino, "Telecommunications in the Year 2000", The Futurist, April, 1979, pp. 95-103.

⁵⁴"Media and Meaning: Human Expression and Technology", (Center for Humanities, 1972.)

⁵⁵Lane Jennings, "The Human Side of Tomorrow's Communications", The Futurist, April, 1979 pp. 104-109.

⁵⁶"An Inquiry Into the Future of Mankind: Designing Tomorrow Today", (Center for Humanities, 1972.)

⁵⁷Stuart Conger, "Social Inventions", The Futurist, August, 1973, pp. 149-158.

⁵⁸Duane S. Elgin and Arnold Mitchell, "Voluntary Simplicity: Life-Style of the Future", The Futurist, August, 1977, pp. 200-209.

⁵⁹Willis W. Harman, "The Coming Transformation", The Futurist, February, 1977, pp. 4-12.

⁶⁰William R. Kepner, Jr., "The Changing Images of Man" This study kit was developed as part of course work for SOCI 5931 "Topic: The Changing Images of Man", based on the report The Changing Images of Man, by O.W. Markley, et. al. (Stanford Research Institute Palo Alto, California, 1974). This 80 slide kit traces human development up to today and outlines some possibly obsolete paradigms.

⁶¹Fred Best, "Recycling People: Work-Sharing Through Flexible Life-Scheduling", The Futurist, February, 1978 pp. 5-17.

- ⁶²"Cope", by Interact Company, P.O. Box 242, Lakeside, California 92040.
- ⁶³"New Town", distributed by World Future Society Book Service.
- ⁶⁴"Future Shock", distributed by World Future Society Book Service.
- ⁶⁵"Futura City", Newsweek Educational Division, 1973.
- ⁶⁶"The Planet Management Game", Houghton Mifflin, 1 Beacon Street, Boston, Massachusetts.
- ⁶⁷"Global Future Game", Earthrise, Inc., 1975.
- ⁶⁸Dean Koontz, Writing Popular Fiction. (Cincinnati: Writer's Digest Books, 1972).
- ⁶⁹Ben Bova, "Science Fiction and Reality", The Writer, May, 1979, pp. 7-10, 47.
- ⁷⁰Isaac Asimov and Groff Conklin, (eds.), Fifty Short Science Fiction Tales. (New York: Collier Books, 1963).
- ⁷¹"Science Fiction: From Jules Verne to Ray Bradbury", (Center For Humanities, 1973).
- ⁷²"Conversation With an Author, Carl Sagan. On Life in Outer Space", Book Digest, October, 1978, pp. 19-22, 24, 27-28.
- ⁷³John Billingham, "Seeking Extraterrestrial Life", Future Life, July, 1979, pp. 24-26, 57.
- ⁷⁴Michael Thacher, "Cosmic Culture Shock", Human Behavior, October, 1978, pp. 18-22.
- ⁷⁵"In Search Of Ancient Astronauts", produced by ABS, distributed by Xerox Films.

⁷⁶Magorah Maruyama, "Designing A Space Community", The Futurist, October, 1976, pp. 273-281.

⁷⁷Paul L. Csonka, "Space Colonization: An Invitation to Disaster?", The Futurist, October, 1977, pp. 285-290.

⁷⁸Gerard K. O'Neill, "Space Colonies: The High Frontier", The Futurist, February, 1976, pp. 25-33.

⁷⁹Stuart Brand (ed.), Space Colonies. (New York: Penguin Books, 1977).

⁸⁰Jib Fowles, "The Improbability of Space Colonies", Technological Forecasting and Social Change, December, 1978. pp. 365-374.

⁸¹The L-5 Society is dedicated to efforts to put a colony in space.
Address: 1620 N. Park Avenue, Tucson, AZ 85719.

⁸²Gary E. McCuen, "ERA Game", Futures Planning Game: Protecting Minority Rights (Minneapolis: Greenhaven Press, 1973).

⁸³"Man and Woman: Myths and Stereotypes" and "The Re-education of Men and Women: Creating New Relationships", Center for Humanities.

⁸⁴U.S. Department of Health, Education and Welfare, A Student Guide to Title IX, GPO.

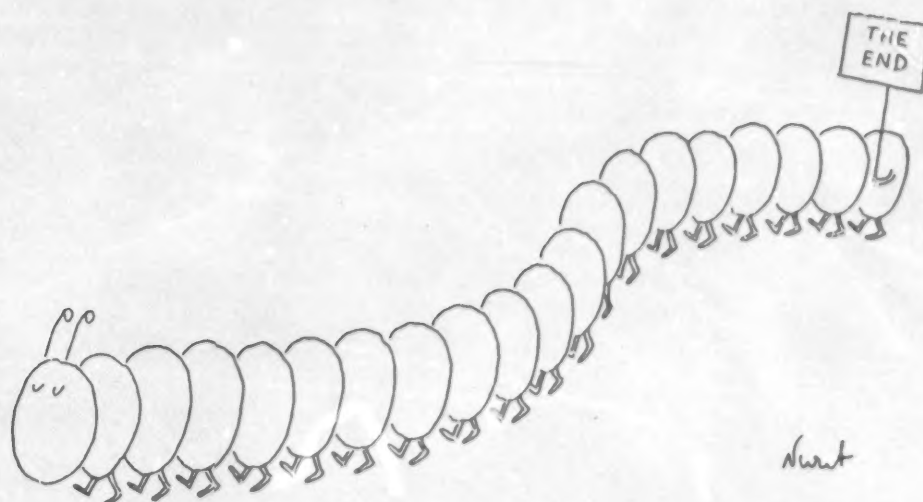
⁸⁵Sarah Slavin Shramm (ed.), Female Studies VIII: Do It Yourself Women's Studies, Distributed by KNOW, Inc. P.O. Box 86031, Pittsburgh, PA 15221.

⁸⁶Arthur O. Lewis, Jr. (ed.), Of Men and Machines, (New York: E.P. Dutton and Co., 1963).

⁸⁷Isaac Asimov, I, Robot. (New York: Fawcett Books, 1950).

⁸⁸Hollis Vail, "The Automated Office", The Futurist, April, 1978, pp. 73-78.

- ⁸⁹Bob Schneider, "Robot Lib", Penthouse, October, 1978, pp. 89-90, 156, 158-159.
- ⁹⁰Ted Nelson, "Computer Lib", Omni, November, 1978, pp. 59-62.
- ⁹¹Jonathon V. Post, "Cybernetic War", Omni, May, 1979, pp. 45-49, 104.
- ⁹²"Ultimate Machine", produced and distributed by Time-Life Films, 1971.
- ⁹³William Abbott, "Work in the Year 2001", The Futurist, February, 1977, pp. 25-31.
- ⁹⁴Norman S. Feingold, "Careers For Today and Tomorrow", Counselor's Information Service, December, 1977, pp. 1-13.
- ⁹⁵"Jobs With the Brightest Future", Changing Times, September, 1977, pp. 6-11.
- ⁹⁶Bureau of Labor Statistics, Occupational Outlook Handbook, 1977-78, GPO, 1977.



SELECTED BIBLIOGRAPHY

- Allen, Dwight W. and Jake Plante, "Looking at the Future in Education", World Future Society Bulletin, 13:2 (March-April, 1979) pp. 27-33.
- Ascher, William, Forecasting: An Appraisal for Policy-Makers and Planners. Baltimore: Johns Hopkins University Press, 1978.
- Bagdikian, Ben H., The Information Machines: Their Impact on Men and the Media. New York: Harper and Row, 1971.
- Banks, James A., Teaching Strategies for the Social Studies: Inquiry, Valuing, and Decision-Making. Reading, Mass.: Addison-Wesley, 1973.
- Bell, Daniel, The Coming Post-Industrial Society. New York: Basic Books, 1973.
- Bowman, Jim, et. al., The Far Side of the Future: Social Problems and Educational Reconstruction. Washington: World Future Society, 1978.
- Cornish, Edward, The Study of the Future, Washington, D.C.: The World Future Society, 1977.
- Daigon, Arthur and William J. Gannon, Jr., Tomorrows. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1977.
- Dickson, Paul, The Future File. New York: Avon Books, 1977.
- Dunstan, Maryjane, and Patricia W. Garlan, Worlds in the Making: Probes for Students of the Future. Englewood Cliffs, N.J.: Prentice-Hall, 1970.
- Eldredge, H. Wentworth, "University Education Futures Studies," The Futurist, 9:2 (April 1975), 98-102.
- Environmental Protection Agency, Alternative Futures for Environmental Policy Planning: 1975-2000. Washington, D.C.: GPO, 1975.
- Etzioni, Amitai, Genetic Fix: The Next Technological Revolution. New York: Harper and Row, 1973.
- Fabun, Don, Dimensions of Change, Beverly Hills, Calif.: Glencoe Press, 1971.

- Fabun, Don, The Dynamics of Change, Englewood Cliffs, N.J.: Prentice-Hall, 1967.
- Ferguson, Robert L. and Patricia M. Proctor, "Resources for Future Studies", Social Education, Volume 43, Number 3 (March, 1979) pp. 226-228.
- Franks, Betty Barclay and Mary Kay Howard, "Infusing a Futures Perspective into Standard Social Studies Courses", Social Education, 43:1 (January 1979), pp. 24-27.
- Fuller, R. Buckminster, Jerome Agel, and Quentin Fiore, I Seem To Be A Verb. New York: Bantam Books, 1970.
- Garlan, Patricia Wallace, Maryjane Dunstan and Dyan Howell Pike, Star Sight: Visions of the Future. Englewood Cliffs, N.J., 1977.
- Greene, Edward E. "Teaching Futuristics in the Classroom Today: A Multimedia Journey", Previews, February 1976, pp. 5-9.
- Harman, Willis W., An Incomplete Guide to the Future. San Francisco: San Francisco Book Company, 1976.
- Heilbrunner, Robert L., An Inquiry Into the Human Prospect. New York: W.W. Norton, 1975.
- Hellfach, Judith C. Future Studies: A Systems Approach. Englewood Cliffs, N.J.: Prentice-Hall, 1977.
- Hollister, Bernard C. and Deane C. Thompson, Grokking the Future: Science Fiction in the Classroom. New York: Pflaum/Standard, 1973.
- Kahn, Herman, William Brown, and Leon Martel, The Next 200 Years: A Scenario for America and the World. New York: William Morrow and Co., 1976.
- Kaufman, Draper L., Jr., Teaching the Future: A Guide to Future-Oriented Education. Palm Springs: ETC Publications, 1976.
- LaConte, Ronald T. and Ellen LaConte, Teaching Tomorrow Today: A Guide to Futuristics. New York: Bantam, 1975.
- McHale, John, The Changing Information Environment. London: Elek Books, 1976.

- McHale, John, The Future of the Future. New York: George Braziller, 1969.
- McHale, John, World Facts and Trends. New York: Macmillan, 1972.
- McLuhan, Marshall, and Quentin Fiore, The Medium is the Massage: An Inventory of Effects. New York: Bantam Books, 1967.
- Markley, O.W., et. al., Changing Images Of Man. Menlo Park, California: SRI International, 1974.
- Martin, Marie, Films on the Future. Washington, D.C.: World Future Society, 1971.
- Meadows, Donella H., et. al., The Limits to Growth. New York: Universe Books, 1972.
- Mitchell, Arnold, et. al., Handbook of Forecasting Techniques. Menlo Park, California: SRI International, 1975.
- National Science Foundation, The Study of the Future: An Agenda for Research. Washington, D.C.: GPO, 1977.
- Norman, Maxwell H. (ed.), Dimensions of the Future: Alternatives for Tomorrow. New York: Holt, Rinehart and Winston, 1974.
- Pulliam, John D. and Jim R. Bowman, Educational Futurism: In Pursuance of Survival. Norman, Oklahoma: University of Oklahoma Press, 1974.
- Research Directorate of the National Defense University, Climate Change to the Year 2000. Washington, D.C.: GPO 1978.
- Stirewalt, James, "The Future as an Academic Subject," World Future Society Bulletin, 11:1 (January-February, 1977), pp. 16-20.
- Theobald, Robert, Futures Conditional. Indianapolis: Bobbs-Merrill, 1972.
- Toffler, Alvin, Future Shock. New York: Random House, 1970 pp. 403, 419.
- Toffler, Alvin, Learning for Tomorrow: The Role of the Future in Education. New York: Random House, 1974.